Remarks

Claims 1-30 are currently pending in the patent application, of which claims 21 and 23 are currently amended in independent form, and claims 26-30 are newly added. In the discussion set forth below, Applicant does not acquiesce to any rejection or averment in this Office Action unless Applicant expressly indicates otherwise.

The Final Office Action dated June 12, 2008 indicated that claims 21-25 recite allowable subject matter, but are objected to for being dependent on a rejected claim. Without acquiescence to any rejection, Applicant submits that claims 21-25 are in condition for allowance due to the present amendment, which re-writes claims 21 and 23 in independent form. Moreover, Applicant submits that new claims 26-29 are in condition for allowance due to their dependence on allowable claims.

The Final Office Action further indicated the following rejections: claims 1-5, 7-8, 12-18 and 20 stand rejected under 35 U.S.C. § 102(b) over Trinh (U.S. 5,204,637); claim 6 stands rejected under 35 U.S.C. § 103(a) over Trinh in view of Ichikawa (U.S. Patent No. 6,532,357); claims 9-10 and 19 stand rejected under 35 U.S.C. § 103(a) over Trinh in view of Nishihori (U.S. Patent No. 6,134,424); and claim 11 stands rejected under 35 U.S.C. § 103(a) over Trinh in view of Kurokawa (U.S. Patent No. 6,678,507). Applicant respectfully traverses each of these rejections for the reasons below and for the reasons presented in the Response dated March 17, 2008.

The § 102(b) rejection of claims 1-5, 7-8, 12-18 and 20 is improper because the Trinh reference fails to disclose all of the features recited in the claims. In particular, the cited portions of Trinh do not correspond to claimed limitations directed to reducing the drive level or increasing the supply voltage of the RF power output unit by means of the control signal to operate the output unit below its saturation level, thereby preserving linearity of a RF power amplifier. Applicant has found no teaching in the Trinh reference regarding operating an output unit below its saturation level to preserve linearity. Rather, Trinh discloses a conventional bias control loop that adjusts a bias level of a driver to account for detected voltage levels versus a fixed voltage reference (*see, e.g.* Col. 3:55-57). As such, Trinh appears to provide nothing over the conventional state of the art regarding gain adjustment.

The Trinh reference appears to be primarily directed to a variable coupling network that allows the output of a power amplifier having a wide dynamic range and multiple output levels to be compared with a single fixed voltage reference level. The variable coupling network provides a certain amount of isolation between the output of the power amplifier and a diode power detector to compensate for the voltage level so that a single voltage reference can be used, and to prevent the diode power detector from saturating. As noted above, Applicant has found no teaching in the Trinh reference regarding operating the RF power output unit below its saturation level.

In response, the Examiner states that the Trinh reference, broadly interpreted, discloses increasing the supply voltage of a bias driver based on a generated error signal. However, the Examiner provides no explanation regarding how any use of Trinh's error signal to control a supply voltage results in operating an output unit below its saturation level to preserve linearity. Rather, the Examiner merely concludes that Trinh teaches controlling power to prevent the diode power detector from saturating without providing any basis for how or why such operation would correspond with preserving linearity, as claimed. As such, the Examiner has provided no interpretation of the teachings of Trinh to contradict Applicant's explanation of Trinh as set forth above.

Accordingly, Trinh fails to disclose all the elements recited in Applicant's claims. Applicant therefore submits that the § 102(b) rejection of claims 1-5, 7-8, 12-18 and 20 are improper, and requests that the rejection be withdrawn.

The § 103(a) rejection of claim 6 is improper because the Ichikawa reference fails to cure the deficiencies of Trinh as noted above, and in particular with respect to operating a RF power output unit below its saturation level for preserving linearity. Moreover, Applicant submits there is no valid reason to make the proposed combination.

It is admitted in the Office Action that Trinh fails to disclose combining adapting of the output matching circuit and adapting of the supply voltage with power amplifier efficiency optimization in the case of multiple threshold detection. It is alleged that Ichikawa provides such features, and that it would be obvious to combine them with the circuit of Trinh. As discussed above, the Trinh reference is directed to a variable coupling network whose purpose is to isolate power from the power detector, the isolation provided at different levels depending on the operating voltage. This is done to prevent the diode power

detector from saturating, and allows the power output to be compared to a single fixed threshold. Ichikawa is proposed to be combined with Trinh for its alleged disclosure of optimization techniques in the case of multiple threshold detection. Applicant submits that one of skill in the art would find no reason to modify the system of Trinh, which is purposefully designed to allow single fixed threshold comparison, to provide optimization techniques in the case of multiple threshold detection. Such a modification runs counter to the teachings of Trinh, and therefore a proper combination cannot be made.

For at least these reasons, Applicant submits that the § 103(a) rejection of claim 6 is improper, and requests that the rejection be withdrawn.

The § 103(a) rejection of claims 9, 10 and 19 is improper because the Nishihori reference fails to cure the above-noted deficiencies of Trinh, and because there is no valid reason to make the proposed combination. It is admitted in the Office Action that Trinh fails to disclose feeding two control signals to a base-band controller. It is alleged that Nishihori provides such features, and that it would be obvious to combine them with the circuit of Trinh. It is further alleged that Trinh discloses the use of at least two parallel operational amplifiers to produce at least two control signals.

Applicant disagrees with the interpretation that Trinh discloses at least two parallel operational amplifiers to produce at least two control signals. As noted above, Trinh is primarily directed to a variable coupling network that allows a wide dynamic range of output voltages to be compared to a single threshold. As such, multiple operational amplifiers are not needed, and Applicant has found no such disclosure in Trinh. Because Trinh provides a single threshold, Applicant submits that one of skill in the art would find no reason to combine the alleged teachings of Nishihori with Trinh in a manner that would read on Applicant's claims. Moreover, Applicant submits that the Nishihori reference appears to provide nothing that would overcome the underlying deficiencies of the Trinh reference as noted above, and in particular with respect to operating a RF power output unit below its saturation level.

For at least these reasons, Applicant submits that the § 103(a) rejection of claims 9, 10 and 19 is improper, and requests that the rejection be withdrawn.

The § 103(a) rejection of claim 11 is improper because the Kurokawa reference provides nothing to cure the deficiencies of the Trinh reference, and in particular with

respect to operating a RF power output unit below its saturation level. Moreover, Applicant submits that no valid reason to make the proposed combination has been presented. For at least these reasons, Applicant submits that the § 103(a) rejection of claim 11 is improper, and requests that the rejection be withdrawn.

Applicant further submits that the art of record does not appear to teach or suggest the method recited in new claim 30. In particular, the cited art does not teach the claimed method including the step of selecting between reducing the drive level and increasing the supply voltage of the RF power output to operate the output unit below its saturation level. Applicant observes that the Examiner alleges only that the Trinh reference teaches increasing the supply voltage, and not reducing the drive level. As such, the Trinh reference does not teach or suggest selecting between increasing the supply voltage and reducing the drive level. Moreover, each of the arguments presented above with respect to at least claim 1 also apply to claim 30.

In view of the remarks above, Applicant believes that each of the rejections has been overcome and the application is in condition for allowance. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is asked to contact the agent overseeing the application file, Peter Zawilski, of NXP Corporation at (408) 474-9063.

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